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(54) MANUFACTURE OF MICROSCOPIC STRUCTURE

(57) Abstract:

PROBLEM TO BE SOLVED: To flatten the surface of a microscopic structure, by a method wherein an upper sacrifice film and a lower sacrifice film are selectively removed by etching on the condition that the rate of etching of the upper sacrifice film is high in comparison with the rate of etching of a material constituting the microscopic structure, and the rate of etching of the upper sacrifice film is high in comparison with the rate of etching of the lower sacrifice film.

SOLUTION: An upper sacrifice film 104 is formed of a P-type SiN film. As a lower sacrifice film 103 is formed of a SOG film by a SOG method, the surface of the film 103 can be flatly formed. In the case where these films 104 and 103 are etched with a CF_4/O_2 plasma, the rate of etching of the P-type SiN film is 5 times higher than that of the SOG film. The film 104 is etched away earlier than the film 103 in comparison with the film 103. Accordingly, the upper surface of the film 103 results in being exposed to an etchant in dry etching and the film 103 is removed even by etching 302 from the upper part of the film 103. Owing to this, the synthetic rate of etching of the film 103 is quickened. A flattening of the upper and lower sacrifice films and a shortening of the time of a removal treatment of the sacrifice films can be contrived.